

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



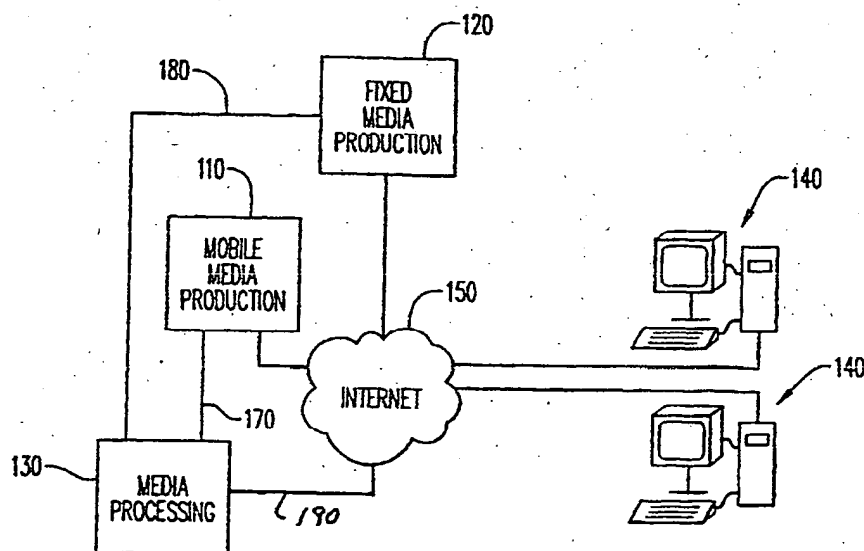
(43) International Publication Date  
12 July 2001 (12.07.2001)

PCT

(10) International Publication Number  
WO 01/50226 A2

- (51) International Patent Classification<sup>7</sup>: G06F (74) Agent: GREELEY, Paul, D.; Ohlandt, Greeley, Ruggiero & Perle, L.L.P., 10th Floor, One Landmark Square, Stamford, CT 06901-2682 (US).
- (21) International Application Number: PCT/US00/35663
- (22) International Filing Date: 29 December 2000 (29.12.2000) (81) Designated State (*national*): JP.
- (25) Filing Language: English (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- (26) Publication Language: English
- (30) Priority Data: 60/173,954 30 December 1999 (30.12.1999) US Published:  
— Without international search report and to be republished upon receipt of that report.
- (71) Applicant: MEDIUM4.COM, INC. [—/US]; 120 Fifth Avenue, 7th Floor, New York, NY 10011 (US).  
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
- (72) Inventors: BRAUN, Jonathan; 24 Holly Hill Lane, Katonah, NY 10536 (US). MOORE, Donald; 300 Mercer Street, Apt. 32K, New York, NY 10003 (US).

(54) Title: SYSTEM AND METHOD FOR PUBLISHING STREAMING MEDIA ON THE INTERNET



(57) Abstract: A method for producing and delivering recordings of events over the internet is disclosed. The method includes recording an event, editing the recording, encoding it into a format suitable for delivery and uploading it to a central server. A web site on the internet is provided where end users may select a recorded event, and that recording is then delivered from the central server to the end user over the internet. Events may be recorded on location, and broadcast programs and previously recorded events are also provided for delivery.

BEST AVAILABLE COPY

## SYSTEM AND METHOD FOR PUBLISHING STREAMING MEDIA ON THE INTERNET

### FIELD OF THE INVENTION

This invention relates to publishing systems, and, in particular to publishing media on the  
5 internet.

### BACKGROUND OF THE INVENTION

Video and audio programs are now produced by large organizations, at great cost, using complex technology and highly specialized talent. The effort required to coordinate these resources and their costs limits the type of video programming available to the public.

10 Digital technology has progressed to the point where both video and audio may now be recorded directly to a digital format or may easily be converted to a digital format. When video has been converted to a digital format it is commonly referred to as having been "digitized." There are various standardized formats for encoding video into digital signals that allow for images and sounds to be recorded, stored, edited, transmitted and  
15 played back. Examples of such formats include the MPEG format for digital video, VRML format for 3-D graphics and MP3 and WAV formats for digital audio. Music can also be transmitted in the MIDI format. MIDI sound is transmitted as a series of notes versus times, all of the notes being played together in order to form the final sound. These formats typically use compression techniques in order to be able to store sufficient  
20 digital information about a particular image or sound to allow for accurate reproduction. Digitized video that has been compressed is commonly referred to as being "encoded."

Computers are optimized to manage digital information, and thus provide an effective environment for manipulating digitized program information. The operations of recording, storing, editing, etc. of digitized program material may be accomplished using  
25 commercially available software programs running on a personal computer. During these operations the digitized information, or data, is stored on a digital storage device, such as RAM or a hard disk. The digitized information is easily manipulated, and because the data is in a digital format, it may also be stored on a network. The information may also

be transmitted through a network, for example, the internet, to a destination where it may be reconverted and the images and sound may be seen and heard.

The data can also be made available to multiple users at once through a technology called "streaming." This technology is implemented by storing the digitized audio or video program material as a file, or as a number of files, on a network storage device. The network storage device is accessible by end users over a network, typically the internet as stated above. The end user views or listens to the program material through a personal computer. An application resident on the end user's personal computer communicates with the network storage device to manage the transmission of data from the network storage device to the personal computer.

#### SUMMARY OF THE INVENTION

A system for the production, encoding, storing, and distributing program materials over the internet to end users. These program materials may be produced on location from mobile production facilities and from fixed production facilities, such as a studio.

Additionally, these program materials may be produced from programs that are available from commercial broadcast systems, that have been provided from service providers, such as news services, or that have been previously recorded by others.

Such program materials may be stored on a server, and an additional web server may be provided as an interface between end users and facilities for distributing the program materials.

The present invention also pertains to a method for producing and delivering recordings of events over the internet. This method includes recording an event, editing the recording, encoding it into a format suitable for delivery and uploading it to a central server. A web site on the internet is provided where end users may select a recorded event, and that recording is then delivered from the central server to the end user over the internet.

Events may be recorded on location, and broadcast programs and previously recorded events are also provided for delivery.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The above set forth and other features of the invention are made more apparent in the ensuing Detailed Description of the Invention when read in conjunction with the attached Drawings, wherein:

- 5 Figure 1 is a block diagram of an internet based media publishing system in accordance with the teachings of this invention.

Figure 2 is a block diagram of a mobile media production system.

Figure 3 is a block diagram of two types of fixed media production facilities.

- 10 Figure 4 shows a block diagram of a media processing center for managing the program material produced by the production facilities and its distribution.

Figure 5 shows a block diagram of the equipment used by an end user for viewing or listening to the distributed program material.

**DETAILED DESCRIPTION OF THE INVENTION**

- Figure 1 shows an overview of a system suitable for practicing the invention disclosed herein. In Figure 1, video and audio programs are created in media production systems or facilities 110, 120. The media production facilities may include mobile equipment 110, that are transportable to a desired location, or may be fixed facilities 120, that are confined to a particular site. The production facilities 110, 120 electronically transfer the video and audio program material to a media processing and distribution center 130 for storage, archiving, further processing, and for distribution to end users 140 through link 190 and the internet 150. The production facilities 110, 120 may transfer the program material to the media processing and distribution center 130 through the internet 150 or through individual links 170 and 180, respectively.

- 25 Figure 2 shows a block diagram of a mobile media production facility 110 in accordance with the teachings of this invention. A portable video camera 200 or a portable audio recorder 205 is used to record program material "on location", that is, in the field, at the location of a particular event. For example, a reporter may carry the camera 200 to the scene of a news event, such as an award ceremony, or a fire, to record actual footage of

- the event. As a second example, a reporter may conceive and develop a story. The reporter may then record the story, either in an audio or video format. After recording, the program material is downloaded to a personal computer 210. The program material may then be edited, enhanced, or further refined, through the use of the portable computer
- 5 210, running a pre-installed, suitable software application 215 and transmitted to the media processing and distribution center 130 through a link 220. The link 220 may be the individual link 170, which may provide a dedicated connection between the portable computer 210 and the media processing and distribution center 130, for example an analog telephone connection through the Public Switched Telephone Network (PSTN).
- 10 The link 220 may also include a non dedicated internet link. The personal computer may also be used to encode the program material into a streaming video format, for example MPEG, Quicktime, Real Player, Windows Media Player, or any other appropriate streaming video format, before transmission to the media processing and distribution center 130.
- 15 It should be understood that the equipment utilized for recording events, stories or other items is not limited to video cameras or audio recorders but may include any device, utilizing any technology, that may be suitable for recording an item.

It should also be understood that the personal computer 210 may be any computer or device capable of editing, refining, or further enhancing the recorder program material.

- 20 It should be further understood that the software application 215 may reside at the media processing and distribution center 130 and that the unedited or edited recorded program material may be transmitted to the media processing center for editing, enhancement, or further refinement.

- Figure 3 shows examples of different types of fixed media production facilities. In a
- 25 fixed media production facility for producing broadcast material 300, at least one antenna 305 is used to receive commercially available media broadcasts. The broadcasts as received are encoded using commercially available equipment 310 into a streaming video format, or optionally, are recorded 315 for editing and future encoding. Upon encoding, program material is stored on a local server 320 and uploaded to the media processing
- 30 and distribution center 130 (Fig. 1) on a periodic basis over link 325.

Program material may also be produced in a studio type of facility 330. The material may be created in a studio 335, which may be a conventional studio, or a studio specially adapted for producing material in digital format. After creation, the program material may be edited, for example, for time or content, using editing equipment 340. After  
5 editing, an encoder 345 is used to encode the program material into a streaming video format, and the encoded material is stored on a local server 350 for periodic uploading to the media processing and distribution center 130 through a link 355.

It should be understood that storing the program material on the local servers 320, 350 before uploading to the media processing and distribution center 130 is optional.  
10 Alternatively, program material may be uploaded to the media processing center at any time through the links 325 and 355.

Figure 4 shows the media processing and distribution center 130 in greater detail. The media processing center includes several functions, including encoding of previously recorded program material 400, receiving program material from the media production  
15 facilities 110, 120, 300, 330 described above, through the links 325 and 355, receiving program material from outside services 405, and storage and distribution of the program material 410.

At the media processing center, program material including previously recorded media is loaded into media players 420. The outputs of the players 420 are coupled to encoders  
20 425 where the program material is encoded to a streaming format. After encoding, the program material is then stored on an archive and staging server 430. The media server is preferably a computer with a digital storage capability. The archive and staging server 430 acts as an archive, that is, a storage facility for all program material that has been edited and encoded, and generally made ready for distribution to end users 140. The  
25 media server may also have the ability to store and to execute editing programs and thus provide an editing capability for the program material stored therein.

Pre recorded program material is also received from outside services 405 through links 435, 440 and 445. This program material may include pre-recorded programs available by subscription from a commercial news provider, financial information, etc. After  
30 reception, this program material is stored on the archive and staging server 430.

Program material that is to be distributed to users is selected from the archive and staging server 430 and copied to a standard production server or service 450, and optionally to a high speed production server or service 455. The standard production server or service 450 and the high speed production server or service 450 are equipped with the necessary hardware and software to facilitate streaming the program materials to end users 140 on demand. End users 140 first interface to a web server 460. The web server 460 provides the end user 140 with a list of the program selections available for receiving. The end user 140 makes a selection and the web server 460 then facilitates an interface 465 between the end user 140 and the standard production server or service 450.

Alternatively, in the event that an end user 140 is capable of receiving a program material stream at high speed, and the program material is available from the high speed production server or service 455, the web server 460 facilitates an interface 470 between the high speed production server or service 455 and the end user 140. After the interface is established, program material is then directed to the end user 140.

Figure 5 is a block diagram of an end user environment suitable for practicing this invention. The end user 140 is equipped with a computer 500, a display 505, and a link 510 to the internet 150, usually through an internet service provider. The computer 500 includes application programs for accessing and displaying information from the internet 150, for example, a web browser. The end user's computer 500 further includes software applications for receiving and displaying streaming video and streaming audio programs. The end user uses the computer 500 to couple to the internet 150 through the link 510. Though the internet 150 the computer interfaces to the web server 460 which as stated above provides the end user with a list of the programs available to the end user. The end user then chooses a selection for viewing or for listening. In response, as stated above, the web server facilitates an interface between the computer 500 and the standard production server or service 450, or, in the event that the end user computer 500 is capable of receiving program material at high speed, the web server 460 facilitates an interface with the high speed production server or service 455. Program material is received by the end user computer 500, decoded and displayed on the display 505. If the program is an audio program it is played through the computer's audio system 515.

It should be understood that the end user may be located in any suitable location for accessing the internet, including, without limitation, a home, a business, or a publicly accessible kiosk, for example at an airport or a retail store.

5 It should be understood that the links 170, 180, 220, 325, 350, and 425 are not limited to a specific technology but may include any type of connection suitable for conveying the program material from the local equipment or server to the media processing and distribution center 130, including a dedicated line, a wireless network, a wired network, such as the PSTN, or the internet 150 (Fig. 1).

10 While the invention has been particularly shown and described with respect to preferred embodiments thereof, it will be understood by those skilled in the art that changes in form and details may be made therein without departing from the scope and spirit of the invention.



What is claimed is:

1. A method for producing and delivering recordings of events over the internet comprising:  
  
recording an event;  
  
uploading said recorded event to a server accessible over the internet;  
  
providing a web site on the internet, said web site comprising a list of said recordings and a method for selecting a particular recording for viewing or listening by an end user; and,  
  
providing said selected recording from said server to said end user by way of the internet.
2. The method of claim 1 wherein said step of recording further comprises recording an event on location by utilizing a set of portable equipment.
3. The method of claim 1 wherein said step of recording further comprises producing program material in a studio.
4. The method of claim 1 wherein said step of recording further comprises recording commercially available broadcast program material.
5. The method of claim 1 wherein said step of recording further comprises editing said recording for time and/or content by way of a program on a computer.
6. The method of claim 1, further comprising, before said step of uploading, encoding said edited recording into a predetermined format for delivery to end users.
7. The method of claim 1, wherein said step of providing said recording to users further comprises enabling a preinstalled application on an end user terminal and delivering said encoded recording to said application for processing and displaying said encoded recording to said end users.
8. A system for producing and delivering recordings of events over the internet comprising:  
  
recording equipment having at least one output for producing recordings;  
  
a server, receptive of said recordings, and for storing said recordings, said server being accessible over the internet ;

a web site on the internet, accessible by a user over the internet, said web site comprising a list of said recordings stored on said server;

an interface for providing a recording from said server to said end user by way of the internet, said recording selected by said user from said list of recordings.

9. The system of claim 8 wherein said recording equipment comprises a set of portable equipment for recording an event on location.

10. The system of claim 8 wherein said recording equipment comprises equipment in a studio.

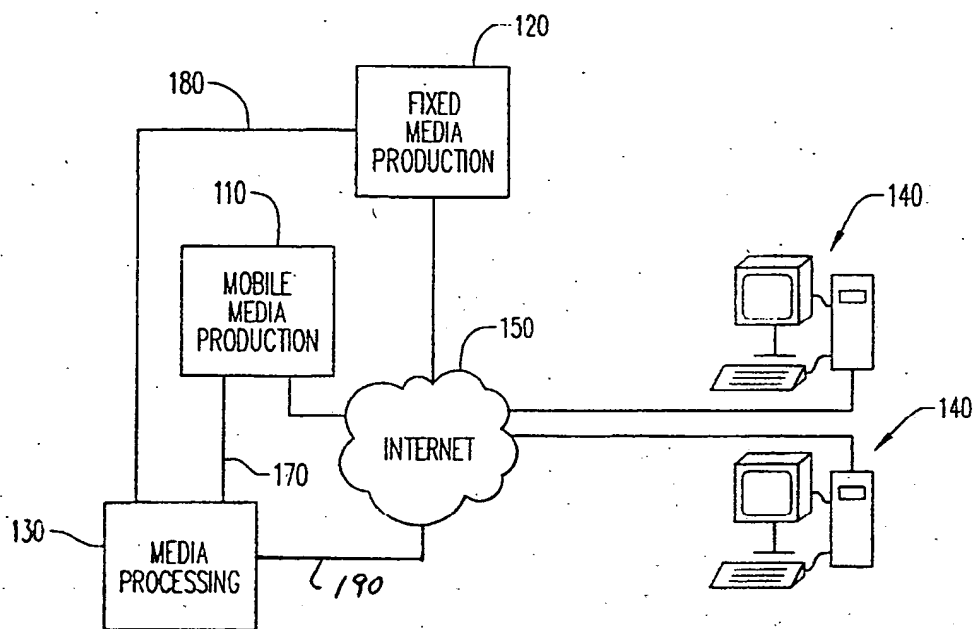
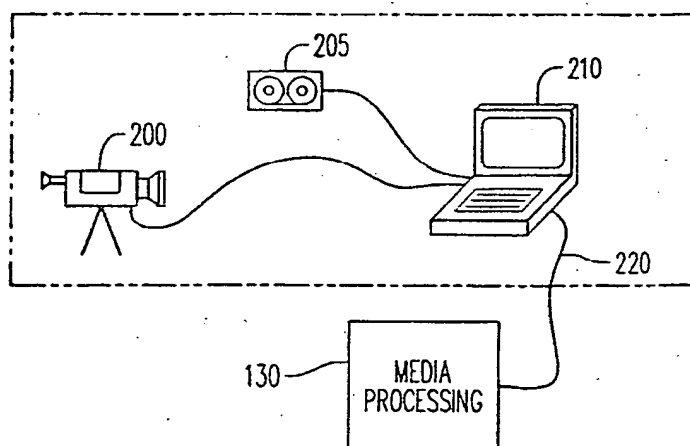
11. The system of claim 8 wherein said recordings comprise commercially available broadcast program material.

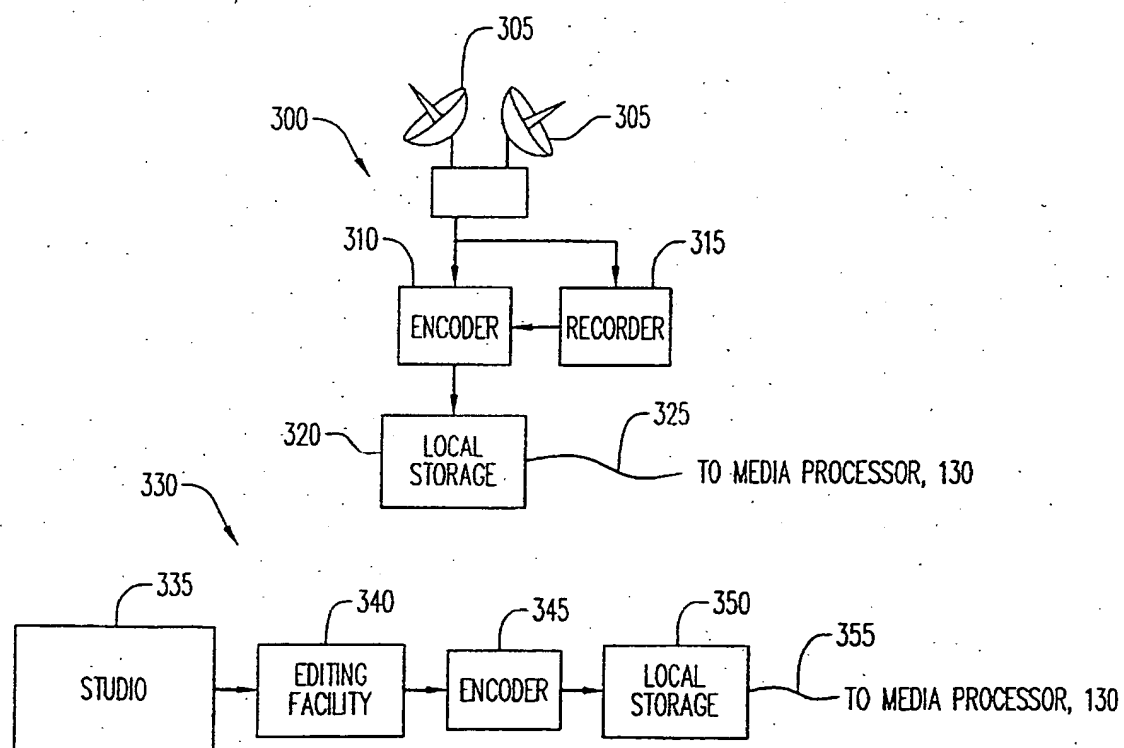
12. The system of claim 8 wherein said recording equipment comprises editing equipment for editing said recordings for time and/or content.

13. The system of claim 8, further comprising encoding equipment, receptive of said recordings, for encoding said recordings into a predetermined format for delivery to said end user.

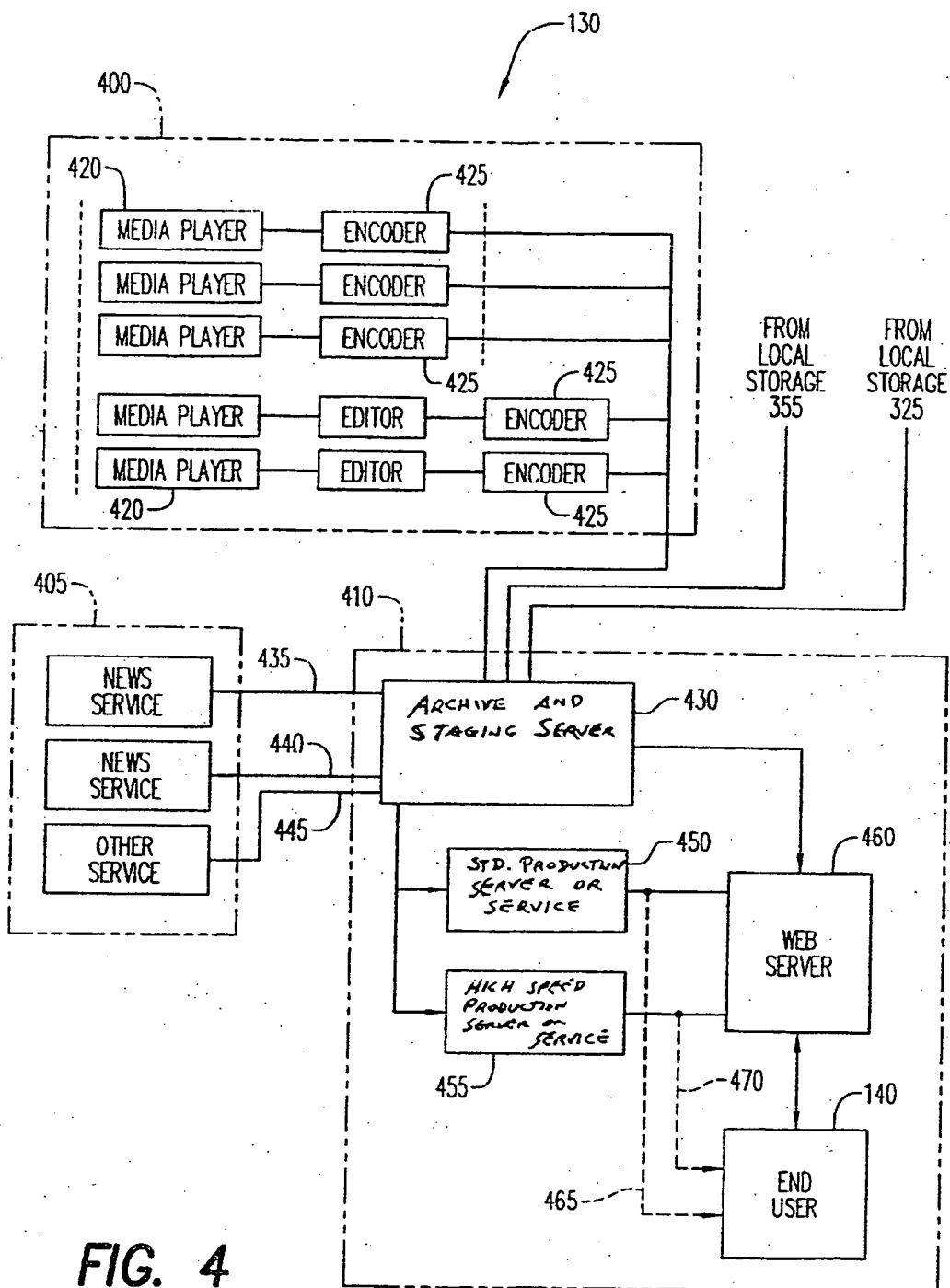
14. The system of claim 8, wherein said interface further comprises a preinstalled application on an end user terminal for processing and displaying said recording to said end user.

1/4

**FIG. 1****FIG. 2**

**FIG. 3**

3/4



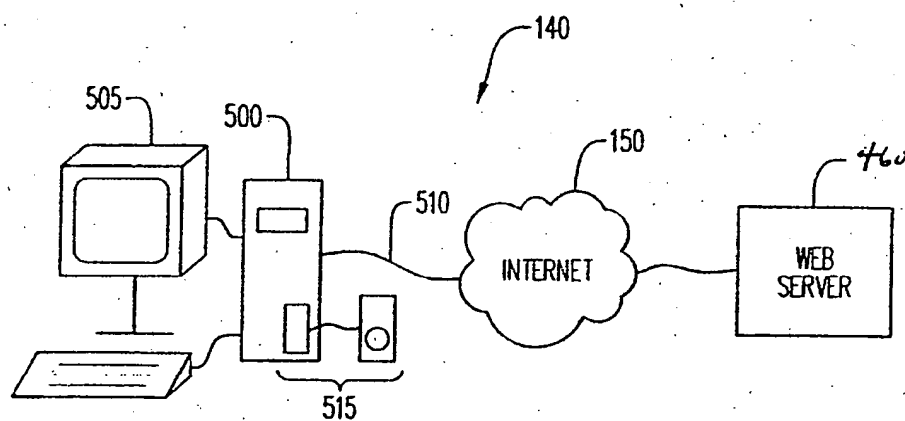


FIG. 5

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



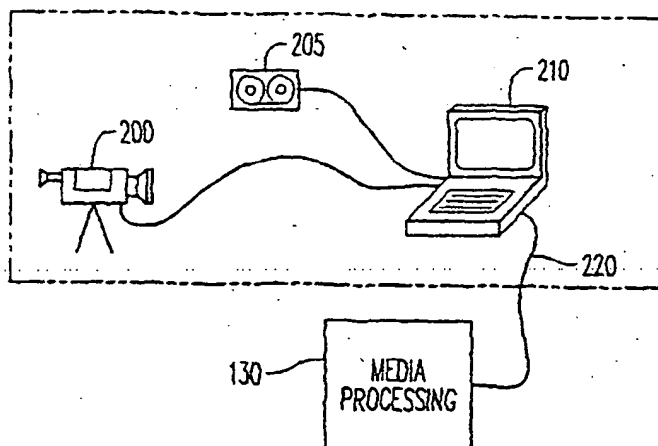
(43) International Publication Date  
12 July 2001 (12.07.2001)

PCT

(10) International Publication Number  
WO 01/50226 A3

- (51) International Patent Classification<sup>7</sup>: H04N 7/16, G06F 7/00, 15/16 (74) Agent: GREELEY, Paul, D.; Ohlandt, Greeley, Ruggiero & Perle, L.L.P., 10th Floor, One Landmark Square, Stamford, CT 06901-2682 (US).
- (21) International Application Number: PCT/US00/35663
- (22) International Filing Date: 29 December 2000 (29.12.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 68/173,954 30 December 1999 (30.12.1999) US
- (31) Applicant: MEDIUM4.COM, INC. [—/US]; 120 Fifth Avenue, 7th Floor, New York, NY 10011 (US).
- (32) Inventors: BRAUN, Jonathan; 24 Holly Hill Lane, Katonah, NY 10536 (US). MOORE, Donald; 300 Mercer Street, Apt. 32K, New York, NY 10003 (US).
- (81) Designated State (*national*): JP.
- (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- Published:  
— with international search report
- (88) Date of publication of the international search report: 13 December 2001
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: SYSTEM AND METHOD FOR PUBLISHING STREAMING MEDIA ON THE INTERNET



(57) Abstract: A method for producing and delivering recordings of events over the Internet is disclosed. The method includes recording an event (200), editing the recording (210), encoding it into a format suitable (210) for delivery and uploading it to a central server (130). A web site on the Internet is provided where end users may select a recorded event, and that recording is then delivered from the central server to the end user over the Internet. Events may be recorded on location, and broadcast programs and previously recorded events are also provided for delivery.

WO 01/50226 A3

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/35663

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : H04N 7/16; G06F 7/00; G06F 15/16 US CL : 725/143,148; 707/104; 709/217-219, 230; 707/104 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 725/143,148; 707/104; 709/217-219, 230; 707/104 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 5,057,932 A (LANG) 15 October 1991, Col.3, lines 40- Col.11, lines 8.	1-14
Y	US 5,911,776 A (GUCK) 15 June 1999, Col.5, lines 65- Col.12, lines 55.	1-14
Y,P	US 6,018,765 A (DURANA et al.) 25 January 2000.	1-14
Y	US 5,987,518 (GOTWALD) 16 November 1999, Col.3, lines 25- 65.	1-14
A	US 5,864,870 A (GUCK) 26 January 1999.	
A	US 5,579,239 A (FREEMAN et al.) 26 November 1996.	
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone. "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "Z" document member of the same patent family		
Date of the actual completion of the international search 15 MARCH 2001		Date of mailing of the international search report 10 APR 2001
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer HAI VAN TRAN Telephone No. (703) 308-0000



**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

☐ BLACK BORDERS

☒ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES

☒ FADED TEXT OR DRAWING

☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING

☐ SKEWED/SLANTED IMAGES

☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS

☐ GRAY SCALE DOCUMENTS

☒ LINES OR MARKS ON ORIGINAL DOCUMENT

☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY

☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**